Study of electroplated silver-palladium biofouling inhibiting coating

The undesired microbial and biofilm adhesions on the surfaces of food industrial facilities, water supply systems and etc. are so called as "biofouling". Biofouling can cause many undesirable effects. Until now for solving biofouling, there are few non-toxic inhibiting treatments. In this study, a new coating has been designed to form an inhibiting effect on the surface by itself. In this way, it is desired that the release of any matter will be in low concentration. This design is based on silver combined with nobler palladium, both with catalytic properties. Due to the potential difference between silver and palladium while contacting with an electrolyte, the surface can form numerous discrete anodic and cathodic areas, so that an inhibiting reaction can be formed. In this paper, a series of electrochemical and biological tests were conducted to study the properties of these surfaces. The inhibiting mechanism is discussed as well.

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